Some Stroboscopic Studies of Spectra of Alternating Current Arc

relative intensities during a discharge proceed also differently, depending on the same factor. In conclusion the author thanks N.S. Sventitskiy who supervised this investigation.
There are: 2 graphs, 1 diagram, 1 table and 2 Soviet references.

ASSOCIATION: Pedagogicheskiy institut im. A.M. Gor'kogo (Pedagogical Institute imeni A.M. Gor'kiy), Minsk.

06574

24(3,7) SOV/170-59-9-15/18

AUTHORS: Kiselevskiy, L.I., Sventitskiy, N.S.

TITLE: On the Role of Polarity in the Entry of Material of Electrodes Into a Light Source During Spectral Analysis

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1959, Nr 9, pp 106-110 (USSR)

ABSTRACT: The effect of polarity of electrodes manifests itself in spectral analysis /Refs 4-11/. The amount of erosion of the cathode may exceed that of the anode by over 20 times. The difference in erosion is seen in photos of traces of damage suffered by three samples which served as anodes (the upper part) and as cathodes (the lower part); they are different both in dimensions and appearance. The authors assume that the reason for this consists in the fact that the mechanism of the entry of electrode material into the light source during electric arc functioning is different for the cathode and anode. The material of the cathode enters the inter-electrode gap as a result of processes of explosive character, which follow the bombardment of the electrode surface by positively charged ions and the rapid increase in the density of the current in the initial phase of the flash. The anode, however, is subjected to the action of electrons whose

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KISELEVSKIY, L. I., Cand Phys-Math Sci -- (diss) "Study of the role of polarity in the excitation of spectra by a curved discharge." Minsk, 1960. 12 pp; (Ministry of Higher and Secondary Specialist and Professional Education Belorussian SSR, Belorussian State Inst im V. I. Lenin); 200 copies; price not given; (KL, 30-60, 135)

KISELEVSKIY, L. I.

S/185/61/006/006/029/030
D299/D304

AUTHOR: Kyselevs'kyy, L.I.

TITLE: On the mechanism of flow of matter from the anode and cathode of a unipolarity arc

PERIODICAL: Ukrayins'kyy fizychnyy zhurnal, v. 6, no. 6, 1961, 878 - 881

TEXT: Direct measurements were carried out of the composition of the vapor phase of specimens which served as anodes and cathodes in a unipolarity arc. The specimens were binary copper-zinc alloys; the zinc concentration varied between 17 and 47 %. Measurements showed that the relative zinc content in the discharge cloud, exceeded the zinc content in the original specimens; the composition of the vapor phase corresponded more accurately to that of the original specimens, when the specimen served as a cathode. The mechanism of vaporization of matter from the cathode and anode was also investigated by taking pictures of the discharge cloud. Figures show typical pictures of the discharge between a copper and a carbon electrode. It was found that the rates of flow of matter from
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the cathode and anode differed. This can be explained by differences in the density of energy, liberated during the discharge at the cathode and anode respectively. The higher energy density at the cathode is due to the higher current density and to the bombardment of the cathode surface by positive ions. Another polarity effect was observed, related to the flow of the discharge in the zone of the cathode spot. Measurements showed that the cathode becomes less hot (by a factor of 1.5 - 1.7) than the anode, notwithstanding the fact that more matter is vaporized from the cathode. Hence the energy liberated at the electrodes is more efficiently used for vaporization in the case of cathode polarity, which is proof of higher energy-density at the cathode. In conclusion, the character of vaporization of matter from the anode and cathode, can differ substantially, flow from the cathode being more explosive-like. There are 2 figures and 5 Soviet-bloc references.

ASSOCIATION: Instytut fizyky AS BRSR (Institut of Physics of the AS Belorussian RSR, Mins'k)

S/048/62/026/007/008/030
B104/B138

AUTHORS: Kiselevskiy, L. I., and Sventitskiy, N. S.

TITLE: Mechanism of the emission of electrode material in arcs for spectrum analysis

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya, v. 26, no. 7, 1962, 869-871

TEXT: The authors studied the differences in the mechanism by which material was removed from anode and cathode in a.c and rectified arcs from standard generators ΔГ-1 (DG-1) and ΔГ-2 (DG-2). The electrodes were made of pure metals and alloys of Cu, Al, Fe, and other metals. Erosion tracks left by single and multiple pulse discharges were studied, as well as luminous discharge clouds. The heating of the specimens and the amount and composition of the discharge clouds were estimated. The greatest difference between the anode and cathode mechanism of evaporation occurs when copper alloys are used. The same holds for the spectra of Cu-alloy specimens. The evaporation of the material from electrodes in a-c arcs is highly dependent on the polarity of the discharge. The

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introduction of material from the cathode takes place violently, while that from the anode is more subdued. The electrode gets so hot that evaporation occurs on its surface. There are 3 figures.

KISELEVSKIY, L.I.; SVENTITSKIY, N.S.

Studying the mechanism of electrode particle emission in arc type light sources for spectrum analysis. Izv. AN SSSR. Ser. fiz. 26 no.7:869-871 Jl '62. (MIRA 15:8)
(Electrodes) (Electric art) (Spectrum analysis)

ACCESSION NR: AP4024188 S/0294/64/000/001/0048/0052

AUTHORS: Kiselevskiy, L. I.; Shimanovich, V. D.

TITLE: Broadening and displacement of spectral lines of iron in a high-pressure arc-discharge plasma

SOURCE: Teplofizika vy*sokikh temperatur, no. 1, 1964, 48-52

TOPIC TAGS: iron, iron spectrum, iron spectral line, spectral line broadening, spectral line displacement, arc discharge plasma, high pressure arc discharge, Stark effect, quadratic Stark effect, quadratic Stark effect constant, effect of pressure variation

ABSTRACT: The investigations were made in an extraneous gas atmosphere (nitrogen) in the pressure interval from 1 to 90 atm. The constants C_4 of the quadratic Stark effect for iron lines were calculated on the basis of data given by S. F. Panter and J. S. Foster (Proc. Roy. Soc. v. A162, 336, 1937). The results are tabulated and

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ACCESSION NR: AP4024188

show that the iron spectrum contains an abundant set of lines with different Stark-effect constants, which differ both in magnitude and in sign. This makes it easier to separate the broadening due to the Stark effect from broadening due to other mechanisms. The effect of pressure variation is discussed and it is pointed out that the data are reliable only up to 60 atm. pressure. It is concluded that when $|C_4| < 1 \times 10^{-14}$ the Van der Waals interaction governs the broadening and shift of the lines, and when $|C_4| > 1 \times 10^{-14}$ an important role is assumed also by the statistical action of the ions, and that the effect of pressure on the width and on the shift of the lines depends essentially on the value of the quadratic Stark effect constant C_4. "In conclusion, the authors are grateful to M. A. Yel'yashevich for interest in the work and for valuable discussions." Orig. art. has: 3 figures and 1 table.

Card 2/3

ACCESSION NR: AP4024188

ASSOCIATION: Institut fiziki AN BSSR (Physics Institute, AN BSSR)

SUBMITTED: 22Jul63 DATE ACQ: 16Apr64 ENCL: 02

SUB CODE: PH, ML NR REF SOV: 005 OTHER: 005

Card 3/5

L 9200-66 EPF(n)-2/EWT(l)/EWT(m)/ETC/EWG(m)/EWP(t)/EWP(b)/EWA(m)-2/m

ACC NR: AR6000105 IJP(c) AT/JD SOURCE CODE: UR/0058/65/000/008/G007/G007

SOURCE: Ref. zh. Fizika, Abs. 8G57

AUTHORS: Kiselevskiy, L. I.; Snopko, V. N.; Gran'kova, D. A.; Shimanovich, V. D.

ORG: none

TITLE: Investigation of the level populations of copper and aluminum atoms subjected to autoionization

CITED SOURCE: Tr. Komis. po spektroskopii. AN SSSR. M., t. 2, vyp. 1, 1964, 150-158

TOPIC TAGS: copper, aluminum, ionization, electron recombination, line intensity, electron energy level, plasma structure

TRANSLATION: A study was made of the influence of the processes of autoionization and recombination on the intensity of the lines whose upper levels correspond to simultaneous excitation of two electrons. The level shifts of Cu and Al were studied. It is shown that the ratio of the intensities of the lines produced on going over from nearby levels with different autoionization coefficients is a function of the temperature, of the charged-particle concentration, and of the density. Under certain conditions such a ratio of the intensities can serve as a sensitive indicator of the physical parameters of a plasma. The obtained data are used to study the physical conditions in electric discharges and jets of a low-temperature plasma.

SUB CODE: 20/ SUBM DATE: none/ ORIG REF: 000/ OTH REF: 000

Card 1/1

L 8756-65 EWT(m)/EPR/EWP(b) Pa-4 AEDC(a)/ESD(ga)/ESD(t) MD

ACCESSION NR: AP4044843 S/0051/64/017/003/0337/0339

AUTHORS: Kiselevskiy, L. I.; Gran'kova, D. A.

TITLE: Effect of the autoionization process on the population of the displaced levels of the aluminum atom 27 B

SOURCE: Optika i spektroskopiya, v. 17, no. 3, 1964, 337-339

TOPIC TAGS: aluminum, level population, level shift, arc spectrum, spark spectrum, autoionization, recombination

ABSTRACT: The levels in question were $4s'\,^4P^0_{1/2}$, $4s'\,^4P^0_{3/2}$, and $4s'\,^4P^0_{5/2}$, and the tests were made in electric discharges in air at pressures ranging from 100 mm Hg to 15 atm. DC and AC arcs of 4 amperes, as well as a low-voltage spark, were used. The electrodes were aluminum rods with a gap of 2 mm. The spectra were photographed with an ISP-28 spectrograph. The level populations were monitored

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ACCESSION NR: AP4044843

by the ratio of the intensities of lines with close upper energy levels, having different autoionization probability. The investigations have shown that the intensity of the lines corresponding to a transition from the level $^4P^0_{5/2}$, which has low autoionization probability, changes with increasing pressure (taking into account the influence of the temperature) in the same manner as the intensity of lines from levels located below the ionization boundary, for which the autoionization probability is equal to zero. It is shown that the ratio of the intensity of lines subject to autoionization first increases strongly with increasing pressure, and then reaches saturation and remains constant. The pressure at which saturation is reached is different for the case of an arc from the case of a spark. Saturation is reached with an AC arc at a pressure close to 500 mm Hg, while in a low voltage spark at about 200 mm Hg. It can therefore be assumed that the saturation region corresponds to the thermal character of level population, and that the decrease in

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L 8756-65
ACCESSION NR: AP4044843

the population of levels with large autoionization probability with decreasing pressure is connected with the decrease in the number of inelastic collisions between the atoms and the electrons and with recombination between the ions and electrons at the levels in question. This conclusion is confirmed by the fact that the deviation of the autoionization levels from equilibrium population always occurs with decreasing electron concentration, attained by decreasing the pressure or by going over to a discharge with lower temperature. "In conclusion, the authors thank M. A. Vel'yashevich for a useful discussion of the work." Orig. art. has: 2 figures and 1 table.

ASSOCIATION: None

SUBMITTED: 10Nov63 ENCL: 00

SUB CODE: OP NR REF SOV: 001 OTHER: 003

Card 3/3

L 14983-65 EWT(l)/EPA(w)-2/EEC(t)/EWA(m)-2 Pab-10
ACCESSION NR: AP4048737 S/0051/64/017/005/0637/0642

AUTHORS: Kiselevskiy, L. I.; Snopko, V. N.

TITLE: Investigation of the populations of shifted e^4D levels of the copper atom in arc and spark discharges

SOURCE: Optika i spektroskopiya, v. 17, no. 5, 1964, 637-642

TOPIC TAGS: copper, line shift, arc spectrum spark spectrum, level population, autoionization

ABSTRACT: The character of the population of the shifted e^4D_J levels of the copper atoms was investigated in dc or ac arc discharges of different current strengths, and also in low- and high-voltage sparks, as a function of the pressure of the atmosphere surrounding the discharge. The purpose of the study was to ascertain under what conditions an equilibrium population of auto-ionization levels of the copper atoms is obtained in electric discharge, and the processes

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which influence most strongly the establishment of such a population. The discharges were produced between copper electrodes in the shape of truncated cones spaced 2 mm apart. The electrodes were mounted in a pressure chamber where the air pressure could be adjusted. The spectra were photographed with an ISP-73 spectrograph, with the line intensity being evaluated with allowance for the background. The control lines used were 4378.20 and 4248.96 Å of CuI. It was established that the electron concentration ensuring equilibrium population of the levels is of the order of 10^{16} cm^{-3}. The relative population of shifted e^4D levels of copper with high auto-ionization probability is found to be determined essentially by the electron concentration. At a concentration above 10^{-16} cm^{-3} the population remains in equilibrium. At lower concentrations the levels subject to auto-ionization are less populated than the usual levels, and the lower the electron concentration, the greater the deviation. In an arc (4 amperes) such a decrease is observed at pressures below atmospheric, and in a low-voltage spark at pressures below 350 mm Hg.

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722820003-7"

L 14983-65
ACCESSION NR: AP4048737

In a high-voltage spark the population of the auto-ionization levels is in equilibrium in the entire pressure range from 65 to 750 mm Hg. "The authors thank M. A. Yel'yashevich for valuable advice and a discussion." Orig. art. has: 2 figures and 1 table.

ASSOCIATION: None

SUBMITTED: 13Jan64 ENCL: 00

SUB CODE: OP NR REF SOV: 001 OTHER: 001

Card 3/3

SULTANOV, M.A. [Sultanau, M.A.]; KISELEVSKIY, L.I. [Kisialeuski, L.I.]

Break-off of electrode material in impulsive discharges.
Vestsi AN BSSR. Ser.fiz.-mat.nav. no.1:80-82 '65.
(MIRA 19:1)

KISELEVSKIY, L.I.; SNOPKO, V.N.

Dependence of the relative population of displaced levels of the copper atom on the electron concentration in an arc discharge plasma. Zhur. prikl. spekt. 2 no.3:207-211 Mr '65.
(MIRA 18:6)

L 8207-66 EWT(l)/EWT(m)/EPF(n)-2/EWP(t)/EWG(m)/EWP(b)/EWA(m)-2 IJP(c) JD/AT
ACC NR: AP5013853 SOURCE CODE: UR/0368/65/002/004/0289/0294

AUTHOR: Kiselevskiy, L. I.; Shimanovich, V. D.

ORG: none

TITLE: An investigation of the population of displaced levels in aluminum and copper atoms in plasma jets

SOURCE: Zhurnal prikladnoy spektroskopii, v. 2, no. 4, 1965, 289-294

TOPIC TAGS: electron energy level, aluminum, copper, plasma research, line intensity, electron transition

ABSTRACT: The nature of the population of displaced levels is experimentally studied for aluminum and copper atoms in plasma jets injected into a vacuum. The installation used in the experiment for producing plasma jets at various pressures is based on the plasmatron principle. The relative populations of the displaced levels in these two elements with various auto-ionization probabilities were determined from the intensity ratio of the transitions from these levels. The lines used and the transitions corresponding to them are given in the table. Graphs are given for the relative intensities of spectral lines along the plasma jet. These graphs show that the relative population of levels with various probabilities of auto-ionization is close to equilibrium throughout the length of the plasma jet only at atmospheric pressure. At a pres-

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sure of 50 mm Hg, the population of levels with a high auto-ionization probability is

Transitions from displaced levels

Element	from the auto ionized level	from the nonauto-ionized level
Al	$\lambda = 3054{,}7$ Å, $3p^2\ {}^4P_{1/2} - 4s'\ {}^4P^0_{3/2}$	$\lambda = 3050{,}1$ Å, $3p^2\ {}^4P_{3/2} - 4s'\ {}^4P^0_{3/2}$
Cu	$\lambda = 4378{,}2$ Å, $z\ {}^4P_{3/2} - e\ {}^4D_{3/2}$	$\lambda = 4275{,}1$ Å, $z\ {}^4P_{3/2} - e\ {}^4D_{1/2}$

attenuated in the neighborhood of the jet nozzle. This attenuation is approximately the same as in an arc discharge at a similar pressure. However, the relative population of levels subjected to strong auto-ionization increases with distance from the nozzle and reaches approximately equilibrium at distances greater than 10 mm. This phenomenon cannot be explained by electron concentration alone. The authors assume that intensive recombination may be responsible for the increase in population in this case. In conclusion, the authors are grateful to Academician AN BSSR, M. A. Yel'yashevich for interest in the work and valuable discussion of the results. Orig. art. has: 2 figures, 1 table.

SUB CODE: NP,ME,OP/ SUBM DATE: 08Jul64/ ORIG REF: 004/ OTH REF: 005

nw

Card 2/2

L 3152-66 EWT(l)/EPA(s)-2/EPA(w)-2/EWA(m)-2

ACCESSION NR: AP5016040 UR/0368/65/002/005/0392/0395
537.53

AUTHORS: Sultanov, M. A.; Kiselevskiy, L. I. 44,55 53 B

TITLE: Spectroscopic investigations of high-voltage pulsed discharges

SOURCE: Zhurnal prikladnoy spektroskopii, v. 2, no. 5, 1965, 392-395

TOPIC TAGS: electric discharge, radiation, line broadening, gas discharge spectroscopy, line spectrum, continuous spectrum, shock wave propagation

ABSTRACT: The authors investigated the influence of hydrodynamic effects, which occur in powerful pulsed discharges in supersonic torches ejected from electrodes, on the spectroscopic characteristics of the discharge. The purpose of the investigation was to determine the causes of intensification of the continuous spectrum and the broadening of the spectral lines in discharge regions remote from the discharge channel itslef. The investigations were carried out with discharges between metallic electrodes (copper, aluminum, and others) in

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L 3152-66

ACCESSION NR: AP5016040

air at atmospheric pressure, produced across a gap of approximately 5 mm from a 800-μF capacitor bank charged initially to 1000 V. The spectra were photographed both in front and behind the shock wave front, using an ISP-28 spectrograph. The results show that the strongest increase in the vicinity of the shock wave is in the continuous spectrum, and the intensity of the ion lines increases more strongly than the intensity of the neutral-atom lines. This indicates that the ionization becomes more intense in the shock wave region. Since the spectral lines turn out to be broader behind the shock wave front, it is concluded that the broadening of the spectral lines and the appearance of the intense continuous spectrum are both due to the shock-wave formation. The reason for the appearance of an intense continuous spectrum and of line broadening in all the zones of the discharge gap is the fact that the shock wave front moves relative to the electrodes during the time of the discharge. Orig. art. has: 3 figures.

ASSOCIATION: None

SUBMITTED: 29Jul64 ENCL: 00 SUB CODE: OP

NR REF SOV: 006 OTHER: 000

Card 2/2

L 31527-66 EWT(1)/EWP(m)/ETC(f) IJP(c) WW/AT

ACC NR: AP6008826 SOURCE CODE: UR/0294/66/004/001/0040/0045

AUTHOR: Sultanov, M. A.; Kiselevskiy, L. I.

ORG: Physics Institute, Academy of Sciences BSSR (Institut fiziki Akademii nauk BSSR)

TITLE: Investigation of the interaction of supersonic torches in pulse discharge

SOURCE: Teplofizika vysokikh temperatur, v. 4, no. 1, 1966, 40-45

TOPIC TAGS: plasma shock wave, plasma torch, supersonic flow, electric discharge

ABSTRACT: This article is devoted to the study of the influence of the interaction of counter torches of a pulse discharge on its structural and spectral characteristics. Modes of discharge were studied at which the vapor velocities in the torches were supersonic. An analysis of the data presented shows that in low-voltage discharges (0.25—0.5 kv) the vapors may have supersonic velocities only near the cut-off of the nozzle (1—3 mm from the cut-off). At high-voltage discharges (~3 kv), the region of supersonic flow in the intermediate stage of the pulse exceeds 10—15 mm. The mechanisms of the process are discussed. It is concluded that during the collision in the interelectrode gap of counter torches, moving at high velocities relative to each other, there forms a plasma compression shock region which may contribute fundamentally to the radiation of the discharge and, consequently, determine its spectral characteristics. Depending on the conditions of the advance of the electrode vapors, the compression shock regions may be either stationary in space and time, or moving in the

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UDC: 533.9.07.537.52

L 31527-66
ACC NR: AP6008826

interelectrode gap. The latter case pertains, as a rule, to discharge between open electrodes. Orig. art. has: 5 figures, 1 table, and 1 formula.

SUB CODE: 20 / SUBM DATE: 07Dec64 / ORIG REF: 010 / OTH REF: 001

Card 2/2

L 29677-66 EWT(1) IJP(c) AT
ACC NR: AP6012857 SOURCE CODE: UR/0368/66/004/004/0342/0345

AUTHOR: Gran'kova, D. A.; Kiselevskiy, L. I.

ORG: none

TITLE: Measurement of the electron density in an ac arc by determining the relative intensities of the transitions from the displaced levels

SOURCE: Zhurnal prikladnoy spektroskopii, v. 4, no. 4, 1966, 342-345

TOPIC TAGS: ac discharge, discharge plasma, plasma arc, electron density

ABSTRACT: This is a continuation of earlier work by one of the authors (Kiselevskiy, with V. N. Snopko, Opt. i spektr. v. 17, 637, 1964) dealing with the character of the population of the displaced copper levels e^4D_j in a dc arc. The present investigation considers the change in the population of these levels in a nonstationary plasma of an ac arc at different pressures of the surrounding atmosphere. Another purpose of the investigation was to check on the applicability of a method (also by Kiselevskiy and Snopko, ZhPS v. 2, 207, 1965) of measuring electron densities by determining the relative intensities of the transitions from displaced levels with different auto-ionization probabilities. The investigations were made with arc pulses from electrodes of a copper and zince (10%) alloy, placed in a chamber in which the pressure could be varied from 1 atm to several

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mm Hg. The gap was 2 mm and the current 3 amp. Investigation of the arc pulses in an atmosphere of hydrogen has made it possible to compare the measured densities against the half-width of the Hβ line. The results obtained by two methods turned out to be quite close in the case of reduced pressure (300 mm Hg). Plots are presented of the electron density vs. the time, of the relative intensity of lines with different auto-ionization probabilities, the electron density, and the relative intensities of the lines of the ion and the neutral atom, as well as the discharge temperature vs. the time for both 760 and 300 mm Hg. A tendency to saturation is observed at 760 mm Hg, but not at 300 mm Hg. The degree of ionization is maximal at the initial stage of the pulse and decreases toward the end. This agrees with the data on the temperature. The variation of the degree of ionization and of the temperature during the pulse agree with the change of the transitions intensity ratio, and consequently with the variation of the electron density. It is thus concluded that the electron density and the intensity ratio are uniquely related at pressures below atmospheric, so that the method can be used to measure the electron density. Orig. art. has: 3 figures.

SUB CODE: 20/ SUBM DATE: 25Jan65/ ORIG REF: 004

L 01248-67 EWP(m)/EWT(1) IJP(c) AT

ACC NR: AP6030710 SOURCE CODE: UR/0368/66/005/002/0148/0152

AUTHOR: Snopko, V. N.; Kiselevskiy, L. I.

ORG: none

61
B

TITLE: Optical and spectroscopic investigations of drag zones of supersonic plasma jets of a pulsed discharge

SOURCE: Zhurnal prikladnoy spektroskopii, v. 5, no. 2, 1966, 148-152

TOPIC TAGS: plasma jet, radiation, plasma discharge

ABSTRACT: The authors show that plasma jets of a pulsed discharge may have a supersonic quality. By running on a solid electrically neutral barrier, they form a region of high density which is a source of a continuous very bright emission. The authors thank M. A. Yel'yashevich for his interest in the study. Orig. art. has: 4 figures. [Based on authors' abstract] [NT]

SUB CODE: 03/ SUBM DATE: 26Jun65/ ORIG REF: 006/ OTH REF: 001/

Card 1/1 hs UDC: 537.525.1

L 09329-67 EWT(l) IJP(c) AT

ACC NR: AP6030926 SOURCE CODE: UR/0207/66/000/004/0096/0098

AUTHOR: Kiselevskiy, L. I. (Minsk); Sultanov, M. A. (Minsk) 49 48

ORG: none

TITLE: Investigations of plasma formations produced by interaction of flares of a pulsed discharge of large power

SOURCE: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 4, 1966, 96-98

TOPIC TAGS: discharge plasma, plasma wave propagation, plasma diagnostics, plasma temperature

ABSTRACT: The article deals with the encounter of plasma jets ejectred from opposite electrodes in a pulsed discharge. This encounter can give rise to shock-compressed plasma regions, and the resultant plasma formations are of interest from the point of view of diagnostics of the discharge parameters. The discharges were produced in air at atmospheric pressure by discharging capacitor banks of 200 and 800 μF capacitance. The discharge voltage was 3 kv and the inductance of the discharge circuit was 1 μH. The structure of the discharge cloud was studied with a high-speed camera (SFR) under continuous sweep conditions and frame-by-frame photography, in which the shock-compressed regions of the plasma were registered in the form of zones of increased brightness. The photographs were taken at 125,000 frames/sec. The high-speed photographs disclosed the presence of sound oscillations in the compressed plasma regions produced by the interaction of the oppositely moving supersonic discharge flares. The

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L 09329-67

ACC NR: AP6030926

oscillation frequency of these sound waves is of the order of 1.6×10^5 sec^{-1} and decreases slightly toward the end of the pulse. The photographs show clearly the bright regions corresponding to the flares and inclined strips corresponding to the sound perturbations. The inclination of the strips makes it possible to determine the speed of sound in the plasma inside the shock-compressed region and consequently its temperature. Formulas for the determination of the temperature are cited. With the 800 μF capacitance, the speed of sound exceeded 2000 m/sec at ~50 μsec following the start of the discharge, and decreased with increase in time. The corresponding temperature was 14,000K, and likewise decreased with time. A lower temperature was obtained when the capacitance was 200 μF. The results confirm the commonly held assumption that the temperature of the plasma is highest at the start of the discharge. It is concluded that this method can be successfully used to measure the time evolution of the temperature and the supersonic formations in a plasma. Orig. art. has: 1 figure and 2 formulas.

SUB CODE: 20/ SUBM DATE: 18Aug65/ ORIG REF: 005

Card 2/2

ACC NR: AP6034210 SOURCE CODE: UR/0368/66/005/004/0421/0425

AUTHORS: Snopko, V. N.; Kiselevskiy, L. I.

ORG: none

TITLE: Investigating the light source due to stoppage of a supersonic plasma jet of pulsed discharge

SOURCE: Zhurnal prikladnoy spektroskopii, v. 5, no. 4, 1966, 421-425

TOPIC TAGS: plasma jet, light source, spectral energy distribution, plasma wave absorption

ABSTRACT: The authors studied the distribution of radiation energy and measured the brightness temperature and adsorption of shock-compressed plasma formed by directing a supersonic plasma jet of pulsed discharge against a fixed barrier. They show that this plasma may serve as a light source of a continuous spectrum with black body energy distribution. The brightness temperature of the source may be varied through a wide range by changing the discharge regime. In the experiments, voltage was varied from 1 to 3 kv and the capacitance from 150 to 1500 μF. Inductance was constant, restricted by the inductance of the feed conductor. The setup of the experiment was similar to that described in a previous paper by V. I. Snopko and L. I. Kiselevskiy (ZhPS, 5, 148, 1966). Absorption measurements in the compressed zone show that, within the errors of measurement, the absorption coefficient does not depend on

UDC: 537.525.1

ACC NR: AP6034210

wavelength. Measurements of absorption and brightness temperatures of the compressed zone of plasma for a capacitance of 150 μF show the first to range from 0.65 to 0.93 and the second from 9000 to 19 000K as the voltage is raised from 1 to 3 kv. It is thus seen that a voltage of 3 kv brings absorption almost to the value of unity. The authors express their sincere thanks to M. A. Yel'yashevich for his interest in the work and his valuable discussion of the results. Orig. art. has: 3 figures and 1 table.

SUB CODE: 20/ SUBM DATE: 14Jul65/ ORIG REF: 009/ OTH REF: 001

Card 2/2

ACC NR: AP6036808 SOURCE CODE: UR/0368/66/005/005/0568/0573

AUTHORS: Bondar', V. A.; Kiselevskiy, L. I.

ORG: none

TITLE: Obtaining spectroscopic investigation of a plane-parallel axisymmetric plasma layer in pulse discharge over a wide temperature range

SOURCE: Zhurnal prikladnoy spektroskopii, v. 5, no. 5, 1966, 568-573

TOPIC TAGS: plasma, plasma temperature, spectrographic analysis, plasma production, high speed photography

ABSTRACT: A method is described for producing plane-parallel axisymmetric plasmas by a pulse discharge. It consists of placing two plexiglass plates, 2 mm apart, between electrodes and opening a 2.5-mm hole in each plate along the electrode axis. The half-period of the discharge is 100 μ sec at 1.5 kv and 5000 amp maximum current. The plasma is analyzed by means of high speed photography and spectrographic methods. The photographs show that the plasma is continuous and expands radially at a very high speed (3--5 km/sec). The spectrographic analysis indicates a very high temperature core (10^{5}° K), about 7 mm wide, consisting mainly of oxygen ions and hydrogen atoms, followed by a very sharp drop in temperature which reaches 5000K at a radial distance of 20 mm. The dominant species in the cold fringes are CN and C_2. The authors thank M. A. Yel'yashevich for his interest in the work. Orig. art. has: 4 figures.

Card 1/1 SUB CODE: 20,14/ SUBM DATE: 15Dec65/ ORIG REF: 007/ OTH REF: 002 UDC: 537.52

S/250/62/006/002/002/007
I001/I201

AUTHOR: Kiselevskiy, L. N.

TITLE: Effect of polarity of an arc discharge on the supply of a copper-zinc alloy into a gas discharge cloud

PERIODICAL: Akademiya nauk, Belaruskay SSR Doklady, v. 6, no. 2, 1962, 86-89

TEXT: The author continues his thesis (Minsk, 1960), to show that the physico-chemical properties of substances determine the different entries into the anode and cathode of a discharge arc of permanent polarity.

In the present work, entries of Cu-Zn alloys (18–47% Zn), into the cathode and anode regions of an arc of permanent polarity (carbon is the upper electrode) produced from a generator ПС-39(PS-39) were investigated. Vapors produced during the discharge were measured by the Burakov and Yanovskiy method (I.F.Zh, no. 10, 1959). The quantity and composition were determined spectrographically.

The nonuniform entrance of the Cu-Zn alloy is more distinct at the anodic polarity of the sample, which affects the intensity of the spectral lines of Cu and Zn, while depending on the composition of the sample.

Regular evaporation of substances serving as anodes is a special feature in alloys of Zn-content exceeding 40%. The crystalline structure has to be considered as explaining this regularity.

The same phenomena are observed in binary and also in more complex alloys.

There are 4 figures.

Card 1/1

Effect of polarity of...

S/250/62/006/002/002/007
1001/1201

ASSOCIATION: Institut fiziki AN BSSR (Institute of Physics, AS BSSR) [PRESENTED by B. I. Stepanov, academician, AS BSSR]

SUBMITTED: April 13, 1961

Card 1/2

67222

18.8100 SOV/58-59-7-16713

Translation from: Referativnyy Zhurnal Fizika, 1959, Nr 7, p 294 (USSR)

AUTHOR: Kiselevskiy, L.V.

TITLE: Electrode-Polarity Dependence of Third-Component Influence During Constant-Direction Arc Excitation of Spectra

PERIODICAL: Uch. zap. Minskiy gos. ped. in-t, 1958, Nr 9, pp 119 - 140

ABSTRACT: The authors carried out a comparative estimate of the character of the influence of third components: Si in a Cu-Zn-Si system (brass) and Sn in a Cu-Zn-Sn system (bronze), using constant-direction arcs (CDA) and AC arcs as the excitation source. The CDA-generator circuit was hooked up on the base of a "PS-39" generator with a connection in the arc-feeding circuit via a full-wave selenium rectifier (without brute-force filters). It was established that the use of the CDA at any polarity of the sample to be analyzed does not lead to the elimination of third-component influences on the absolute and relative intensities of the spectral lines of Cu and Zn. A certain diminution of influence on the relative intensity of the analytical lines of Cu and Zn is observed when the sample is connected via the cathode and a Cu exchangeable electrode is used. In an

Card 1/2

67222
SOV/58-59-7-16713

Electrode-Polarity Dependence of Third-Component Influence During Constant-Direction Arc Excitation of Spectra

AC arc the influence of Si and Sn has an intermediate character as compared with that observed when the sample is connected via the cathode or anode. The determinant role of electrode polarity in the effect under investigation is connected with the phenomenon of positive thermionic emission that takes place in the arc alongside of the evaporation of neutral atoms. The bibliography contains 24 titles.

A.B. Shayevich

Card 2/2

SHCHEDROVITSKIY, S.S., kand.tekhn.nauk; KOPEYKINA, N.N., inzh.; TARAPIN, V.N., inzh.; GOLOVKO, Z.I., inzh.; KISELEVSKIY, S.I., inzh.; GOLOVANOV, A.I., inzh.

Universal loader limiter. Bezop.truda v prom. 5 no.7:16-19 Jl '61. (MIRA 14:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut stroitel'nogo i dorozhnogo mashinostroyeniya.
(Cranes, derricks, etc.—Safety appliances)

AKOL'ZIN, P.N.; ARAKEL'YANTS, N.M.; BUYANOVA, O.A.; KIRNOSOV, V.I.; KISELEVSKIY, S.L.; TARAPIN, V.N.; SHCHEDROVITSKIY, S.S.; EYDEL'MAN, R.Ya.

Unified series of strain gauges for the automation of construction and road machinery. Priborostroenie no.8:11-12 Ag '62. (MIRA 15:9)

(Strain gauges)

CA KISELEVSKIY, V. I.

7

PROCESSES AND PROPERTIES INDEX

Qualitative analyses without hydrogen sulfide. D. V. Bezuglyi, V. I. Kiselevskii, and N. K. Senyota. *Trudy Khar'kov. Khim.-Tekhnol. Inst. im. S. M. Kirova* No. 5, 40-50(1945) (Pub. 1946); cf. *C.A.* 42, 7191i.—H_2S gas can be replaced by a suspension of ZnS. Each crystal of ZnS acts as a generator of H_2S and maintains concn. of ions of S'' at 1.6 × $10^{-[illegible]}$ through the whole mass of the liquor, and not only at the site of passage of bubbles of H_2S. The ZnS reagent can be prepd. by mixing *N* solns. of $ZnCl_2$ and $(NH_4)_2S$.

S. Strelzoff

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

KISELEVSKIY-BABININ, R. G.

KISELEVSKIY-BABININ, R. G. -- "The Effects of the Time of Collection and Sowing of Acorns on the Growth of Oak Seedlings." Min Higher Education Ukrainian SSR. Kiev, 1956. (Dissertation for the Degree of Candidate in Agricultural Sciences).

So: Knizhnaya letopis', No 8, 1956, pp 97-103

KISEL'GOF, A.Z.

Simplified method of determining the principal dimensions and capacity of rotary kilns for the wet method of producing clinker. Trudy IUzhgiprotsementa no.4:55-62 '63.

(MIRA 17:11)

KISEL'GOF, B., kandidat tekhnicheskikh nauk.

Letter to the editors. Elektrosviaz' 11 no.6:70-71 Je '57.
(Telecommunication) (MLRA 10:6)

KISEL'GOF, B.Z.

Evaluating the resistance to interference in phototelegraphic transmissions. Elektrosviaz' 10 no.8:60-68 Ag '56. (MLRA 9:9)
(Phototelegraphy)

ORLOVSKIY, Yevgeniy Loginovich; KISEL'GOF, B.Z., otvetstvennyy red.; BUSANKINA, N.G., red.; MAZEL', Ye.I., tekhn.red.

[Theoretical principles of phototelegraphy] Teoreticheskie osnovy fototelegrafirovaniia. Pod red. B.Z.Kisel'gofa. Moskva, Gos.izd-vo lit-ry po voprosam sviazi i radio, 1957. 781 p. (MIRA 11:1)

(Phototelegraphy)

KISEL'GOF, B.Z., otv.red.; SALITAN, L.S., red.; MARKOCH, K.G., tekhn.red.

[Electronic phototelegraphy; information collection] Elektronnaia fototelegrafiia; informatsionnyi sbornik. Moskva, Gos. izd-vo lit-ry po voprosam sviazi i radio, 1958. 132 p. (MIRA 12:2)

1. Russia (1923- U.S.S.R.) Ministerstvo svyazi. Tekhnicheskoye upravleniye.

(Phototelegraphy)

L 27144-66 EWT(m)/ETC(f)/EWG(m)/EWP(j)/T/ETC(m)-6 DS/WW/RM

ACC NR: AP6017110 SOURCE CODE: UR/0054/65/000/003/0074/0082

AUTHOR: Arkhangel'skiy, L. K.; Materova, Ye. A.; Kisel'gof, G. V. 41

ORG: none B

TITLE: Study of ion-exchange equilibrium. Exchange of ions on sulfocation-exchange resins with varying divinylbenzene content

SOURCE: Leningrad. Universitet. Vestnik. Seriya fiziki i khimii, no. 3, 1965, 74-82

TOPIC TAGS: ion exchange resin, ion exchange

ABSTRACT: The number of studies containing data on ion-exchange equilibrium for singly charged ions is very large, and somewhat less than large for the exchange of doubly charged and diversely charged ions. Available data permits several qualitative conclusions of the effect on ion-exchange equilibrium of the nature of the exchanged ions and the divinylbenzene (DVB) content present. However, a qualitative explanation of ion-exchange regularities can be equally satisfactory from the point of view of several models. More information can be anticipated through evaluation of data on ion-exchange equilibrium quantitatively. The present study examines ion-exchange equilibrium in the systems HCl -

Card 1/2

UDC: 541.123

L 27144-66

ACC NR: AP6017110

LiCl, HCl - TlCl, HCl - $MgJC_2$, and HCl - $BaCl_2$. Selection of the system is governed by the desire to study the effect on ion-exchange equilibrium both of the value of the charge of one of the replaced. In order to study the effect of the amount of crosslinking bonds on ion-exchange equilibrium, experiments were conducted with three samples of the KU-2 sulfo-cation-exchange resin, containing different amounts of DVB. It was concluded that variation in the value of the equilibrium coefficients with change in ion-exchange resin content within the limits of the simplest presuppositions are accounted for by different factors for ion-exchange resins with a low and those with a high DVB content. In order to elucidate the minimum on the curve describing the equilibrium coefficient versus composition, characteristic for exchange of Mg^{2+}-H^+ on a cation-exchange resin containing 8% DVB, it must be assumed that the non-uniformity of the established ion with respect to bonding energies with the counterion cannot exist in an ion-exchange resin with a low DVB content and appears with an increase in the DVB content. Then, curves with a minimum can be viewed transitional, from functions characteristic of ion-exchange resins with energetically equivalent fixed ions, to functions characteristic of ion-exchange resins containing fixed ions which differ in bonding energy. Orig. art. has: 3 figures, 4 formulas, and 1 table. [JPRS]

SUB CODE: 07 / SUBM DATE: 12Apr65 / ORIG REF: 009 / OTH REF: 021

Card 2/2

L 29125-66 EWT(m)/ETC(f)/EWG(m) RM/DS

ACC NR: AP6017111 SOURCE CODE: UR/0054/65/000/003/0083/0089

AUTHOR: Arkhangel'skiy, L. K.; Materova, Ye. A.; Kisel'gof, G. V. 31 B

ORG: none

TITLE: Methods of calculating activity coefficients for ion-exchange resin components

SOURCE: Leningrad. Universitet. Vestnik. Seriya fiziki i khimii, no. 3, 1965, 83-89

TOPIC TAGS: ion exchange resin, ion exchange

ABSTRACT: A method of calculating the activity coefficients of ion-exchange resins containing single charged counterions. In the calculations the following assumptions were made:

1) the nonexchange absorption of electrolytes on diluted water solutions can be neglected;
2) water-saturated ion-exchange resin containing two kinds of counterions can be regarded as a bicomponent system.

Relationships affording calculation of activity coefficients for ionexchange resins containing singly charged counterions can be readily derived for the case when the ion-exchange resin contains polycharged counterions. Comparison of calculation results for

Card 1/2 UDC: 541.121:536.7

L 27125-66

ACC NR: AP6017111

a different method of selecting ion-exchange components was made of the KU-2 sulfo-cation exchange resin containing 8% DVB on the system HCl - $MgCl_2$. In calculating activity coefficients two goals can be aimed at 1) Systematization of information on the appearance of interactions in the ion-exchange resin phase. In this case, a system in which the interactions are most fully suggestive of interactions in the ion-exchange resin is selected in preference over others. From this point of view, both the standard systems examined in the study must be regarded as unsuccessful: their properties differ too much from the properties of actual ion-exchange resins. It would be useful, for example, to have standard systems in which the chemical potentials of components as functions of their concentration would take into account electrostatic interactions in the ion-exchange resin, into a Debye approximation./ Orig. art. has: 26 formulas and 1 table. [JPRS]

SUB CODE: 07 / SUBM DATE: 12Apr65 / ORIG REF: 001 / OTH REF: 006

Card 2/2

ARKHANGEL'SKIY, L.K.; MATEROVA, Ye.A.; KISEL'GOF, G.V.

Ion exchange equilibrium. Ion exchange on sulfonated cationites with various divinylbenzene content. Vest. LGU 20 no.16:74-82 '65.

Methods of calculating the activity coefficients of components in ion exchangers. Ibid.:83-89 (MIRA 18:9)

KISEL'GOF, I., inzh.; ZAPOROTTSKOV, N., inzh.

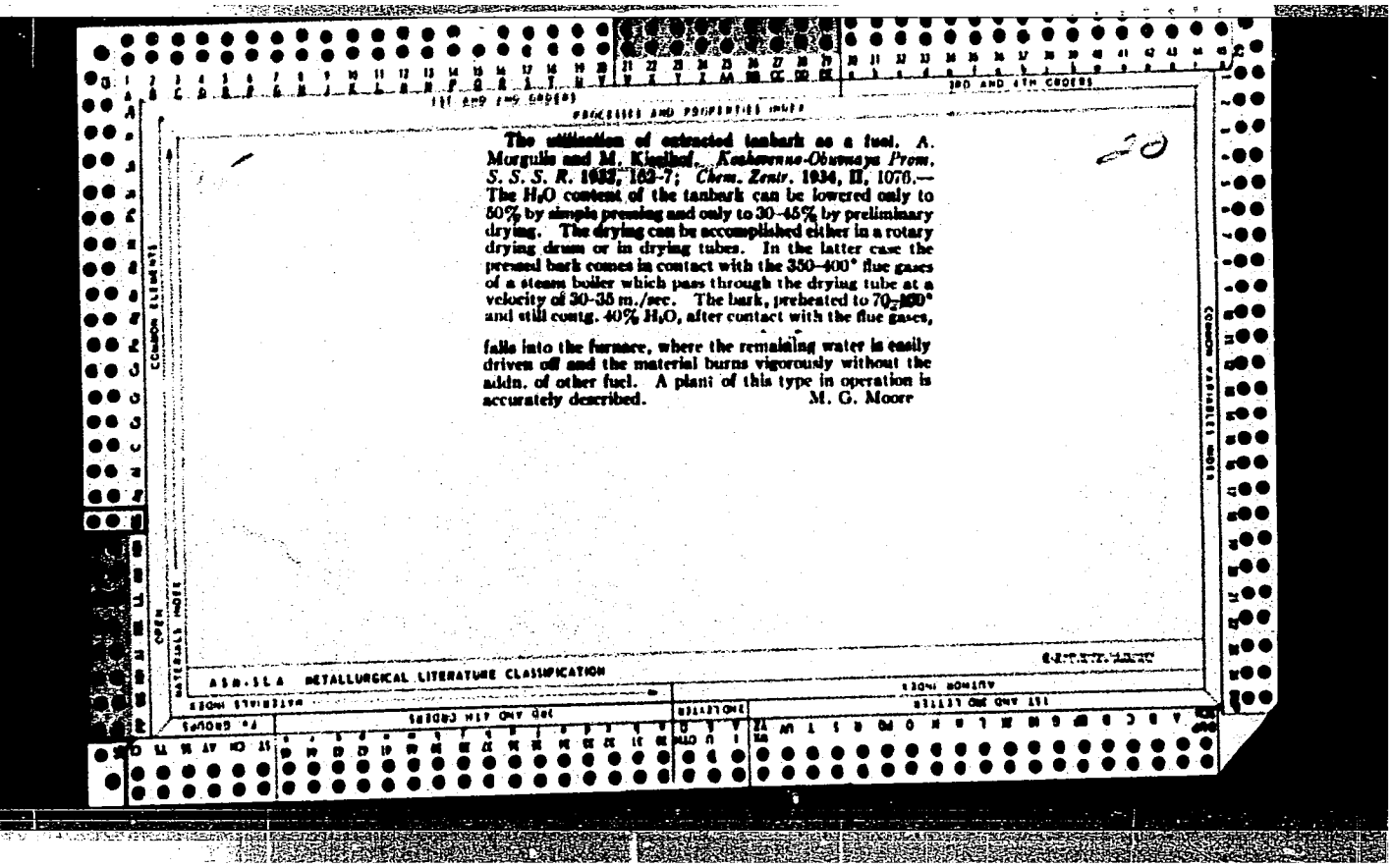
Standardized control system for the winches of grab cranes.
Rech. transp. 24 no.6:19-21 '65. (MIRA 18:8)

PAIN, B., inzh.; KISEL'GOF, I., inzh.

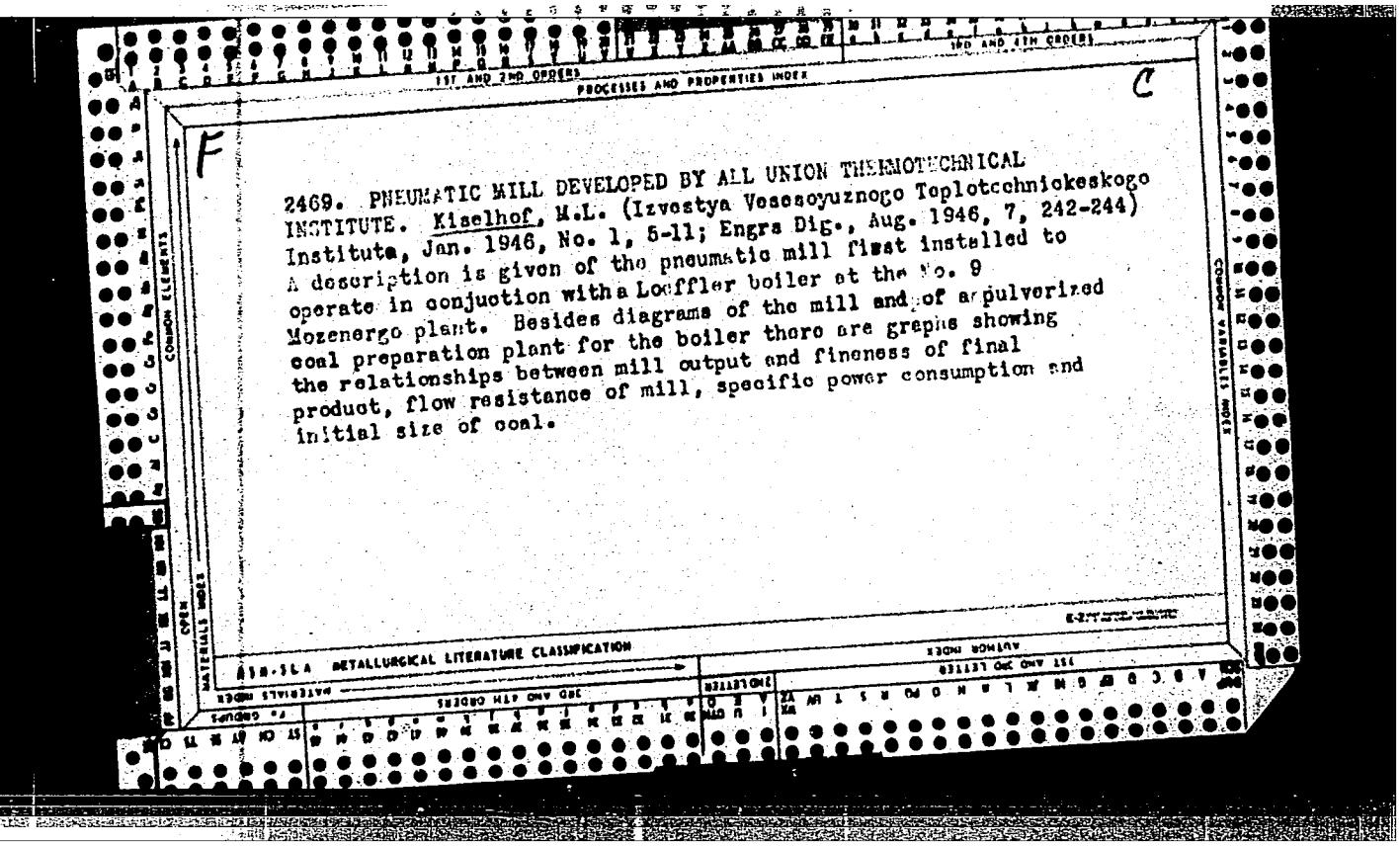
Automatic control of transformer substations in harbors. Rech. transp. 20 no.9:22-24 S '61. (MIRA 14:9)
(Harbors) (Electric substations) (Automatic control)

KISEL'GOF, I., inzh.

Protecting the feeding cable of gantry cranes from breaking.
Rech. transp. 23 no.12:41 D '64. (MIRA 18:6)



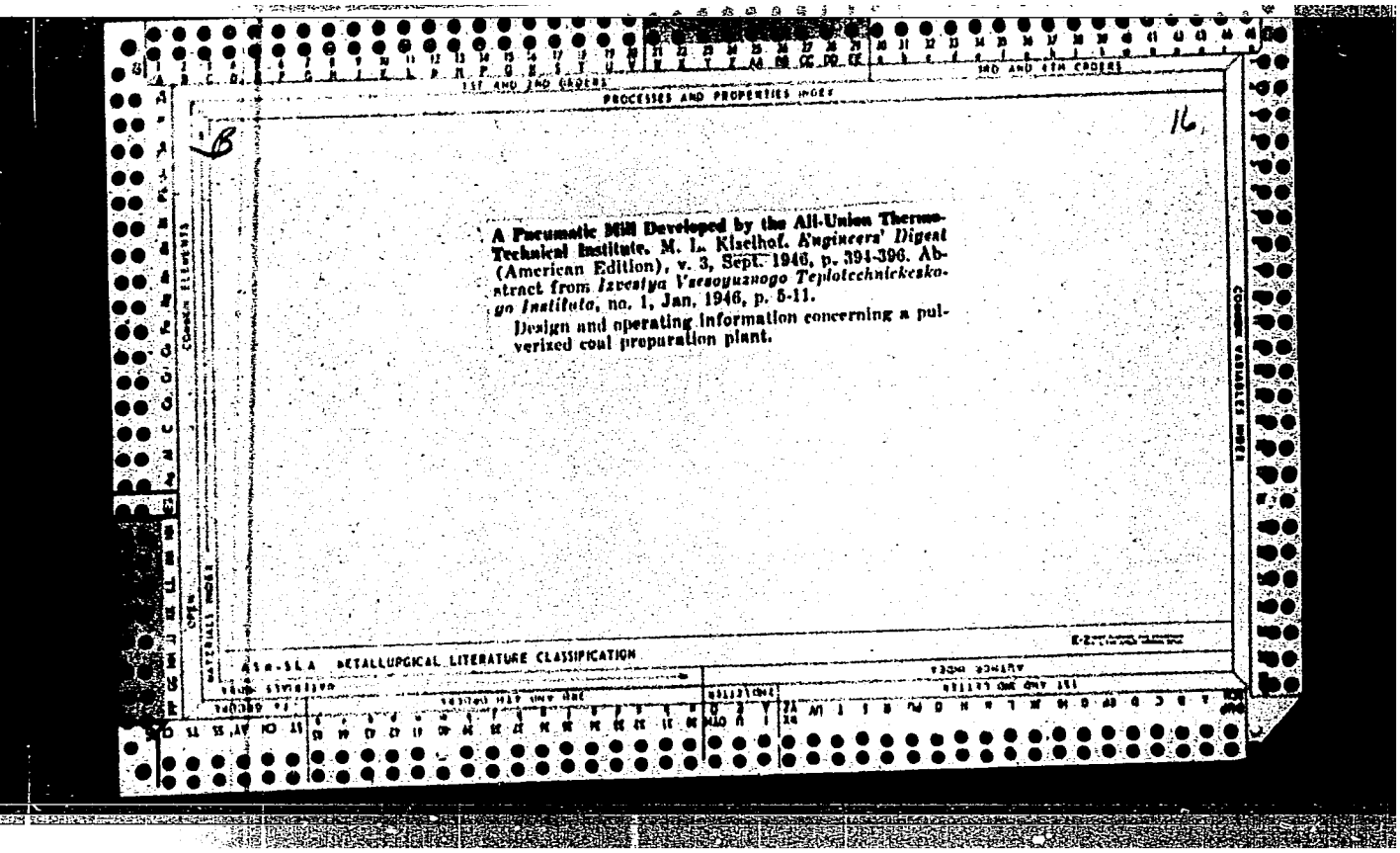
The utilization of extracted tanbark as a fuel. A. Morgulis and M. Kiselnf. *Koksovanie-Obzornaya Prom. S. S. S. R.* 1933, 162-7; *Chem. Zentr.* 1934, II, 1076.—The H_2O content of the tanbark can be lowered only to 50% by simple pressing and only to 30–45% by preliminary drying. The drying can be accomplished either in a rotary drying drum or in drying tubes. In the latter case the pressed bark comes in contact with the 350–400° flue gases of a steam boiler which pass through the drying tube at a velocity of 30–35 m./sec. The bark, preheated to 70–80° and still contg. 40% H_2O, after contact with the flue gases, falls into the furnace, where the remaining water is easily driven off and the material burns vigorously without the addn. of other fuel. A plant of this type in operation is accurately described. M. G. Moore



F

C

2469. PNEUMATIC MILL DEVELOPED BY ALL UNION THERMOTECHNICAL INSTITUTE. Kiselhof, M.L. (Izvestya Vsesoyuznogo Teplotechnicheskogo Instituta, Jan. 1946, No. 1, 5-11; Engrs Dig., Aug. 1946, 7, 242-244)
A description is given of the pneumatic mill first installed to operate in conjuction with a Loeffler boiler at the No. 9 Mozenergo plant. Besides diagrams of the mill and of a pulverized coal preparation plant for the boiler there are graphs showing the relationships between mill output and fineness of final product, flow resistance of mill, specific power consumption and initial size of coal.



PROCESSES AND PROPERTIES INDEX

16

A Pneumatic Mill Developed by the All-Union Thermo-Technical Institute. M. L. Klaithof. *Engineers' Digest* (American Edition), v. 3, Sept. 1946, p. 394-396. Abstract from *Izvestiya Vsesoyuznogo Teplotechnicheskogo Instituta*, no. 1, Jan. 1946, p. 5-11.

Design and operating information concerning a pulverized coal preparation plant.

A5a-5L A METALLURGICAL LITERATURE CLASSIFICATION

KISSELGOF, M L PA 3T26

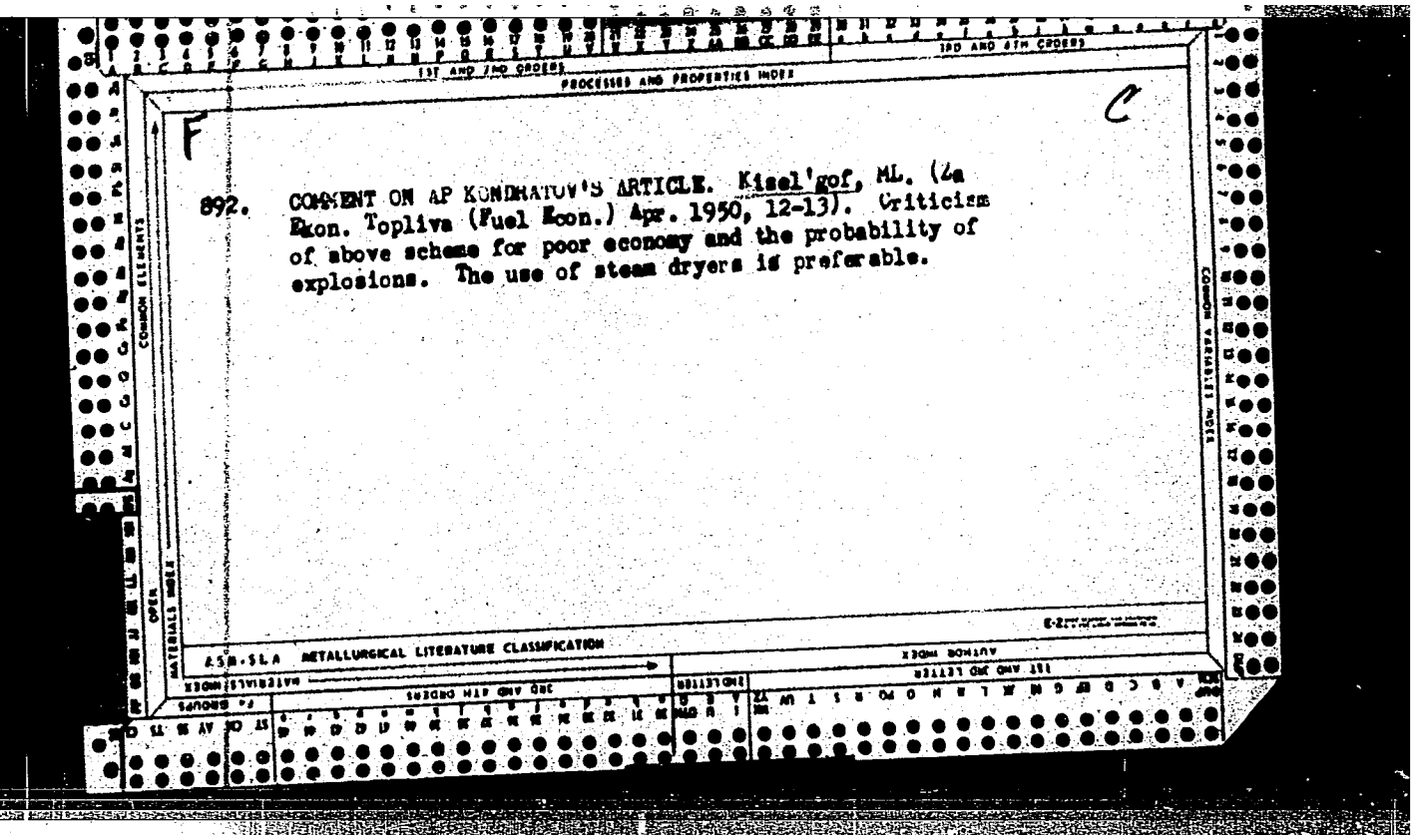
USSR/Coal Jan 1946
Pneumatic crushing mills

"Investigation of the TTI Pneumatic-crushing Mill System for Moscow-Region Coal," M L Kisselgof, 6 pp

"Izv Vse Teplotekh Inst" Vol XV, No 1

Positive results obtained from the use of the first industrial pneumatic-crushing mill of the TTI system introduced these mills to industry. At present, six more pneumatic-crushing mills are being constructed. Illustrated with table and graphs.

3T26



Fuel Abstracts — Steam Engines 111

3684. UTILIZATION OF ANTHRACITE TAILINGS IN POWER PLANTS.
Kisel'gof, M.L. and Orochko, A.A. (ZA. Ekon. Topliva (Fuel Econ.) May 1952, 5-8). From the results of experimental combustion of anthracite tailings at a power plant to ascertain their practical value it is concluded that t he waste with amoisture content up to 10% is a suitable fuel for power plants, but for normal operation moisture should not exceed. 709%. (L) B.E.A.

KISELIOF, M.I.

Milling Machinery

Determining the productivity of pneumatic mills. Izv. VTI 21, no.8, 1952.

Monthly List of Russian Accessions, Library of Congress, December 1952. UNCLASSIFIED

KISEL'GOF, Moisey L'vovich; NADZHAROV, M.A., redaktor; VORONIN, K.P., tekhnicheskiy redaktor

[Pneumatic coal crushing] Pnevmaticheskii razmol uglei. Moskva, Gos. energ. izd-vo, 1955. 150 p. (MLRA 8:4)
(Coal, Pulverized) (Pneumatic machinery)
(Milling machinery)

KISEL'GOF, ~~L.M.~~ M L .

AID P - 2553

Subject : USSR/Engineering

Card 1/1 Pub. 110-a - 5/13

Author : Kisel'gof, M. L., Kand. Tech. Sci.

Title : On selecting a pulverized coal separator for anthracite culm in a drum ball mill

Periodical : Teploenergetika, 6, 25-28, Je 1955

Abstract : The article analyses causes of difficulties occurring during the process of pulverizing anthracite culm. The operations of the drum, separator and pulverizing system are discussed and illustrated with curves. Some recommendations on the design of separators are made. Nine diagrams.

Institution: All-Union Heat Engineering Institute

Submitted : No date

KISEL'GOF, M.L.

AID P - 3537

Subject : USSR/Electricity

Card 1/2 Pub. 29 - 1/27

Authors : Kisel'gof, M. L., Kand. Tech. Sci., and G. A. Sheynin, Eng.

Title : Efficient methods of burning fuels with a small volatile matter content

Periodical : Energetik, 11, 1-4, N 1955

Abstract : The authors find that burning fuels with little volatile matter content is very uneconomical in the majority of Soviet electric power stations. In the burning of anthracite culm, which contains less than 8% volatile matter, combustion is found to be incomplete. 20 to 30% even 40% of the combustibles material is lost in exhaust. The authors suggest a series of improvements in burning methods to avoid this great annual loss in fuel. Three tables, 2 diagrams, 4 drawings.

AID P - 3537

Energetik, 11, 1-4, N 1955

Card 2/2 Pub. 29 - 1/27

Institution : None

Submitted : No date

KISEL'GOF, M. L.

PERIODICAL ABSTRACTS

Sub.: USSR/Engineering AID 4175 - P

ROMADIN, V. P., M. L. KISEL'GOF, and N. V. SOKOLOV.
OPREDELENIYE MOSHCHNOSTI I PROIZVODITEL'NOSTI SHAROVYKH BARABANNYKH MEL'NITS (Determining the capacity and output of drum type coal mills). Teploenergetika, no. 2, F 1956: 56-60.

A theoretical analysis of the performance of coal mills considering the amount of electric energy required for their operation, the types of ventilators and separators etc. Tables show various types of coal and the mill output. A mathematical analysis for computing the drum mill operation is presented. Six diagrams.

KISEL'GOF, M.L.

Subject : USSR/Heat and Power Engineering

Card 1/1 Pub. 110 a - 13/15

Authors : Romadin, V. P., N. V. Sokolov, Docs. of Tech. Sci., and M. L. Kisel'gof, Kand. Tech. Sci.

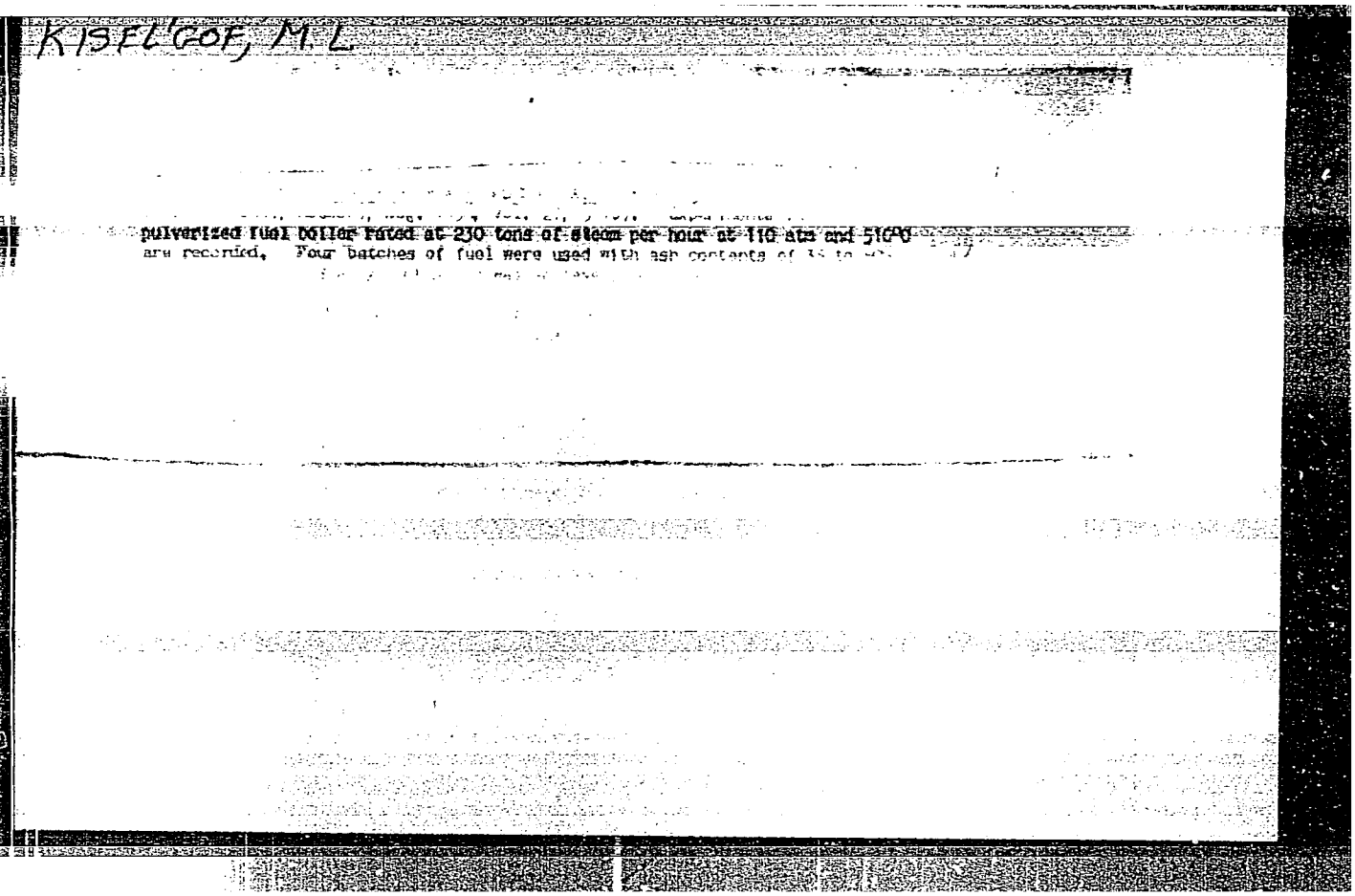
Title : Determining the efficiency of fuel-pulverizing mills

Periodical : Teploenergetika, 3, 58-61, Mr 1956

Abstract : The present standards for pulverizing mills are considered unsatisfactory. The authors suggest a new method for the computation of the mills' efficiency and give a detailed mathematical analysis to substantiate their report.

Institutions: All-Union Heat Engineering and Central Boiler and Turbine Institute

Submitted : No date



KISELGOF, M.L.

pulverized fuel boiler rated at 230 tons of steam per hour at 110 ats and 510°
are recorded. Four batches of fuel were used with ash contents of

KISEL'GOF, M.L., kandidat tekhnicheskikh nauk.

Operation of centrifugal separators. Elek.sta.27 no.2: 5-13 F '56. (MLRA 9:6)
(Dust collectors) (Coal, Pulverized)

KISEL'GOF, M. L., and KISELEV, P. I., (Cand.Tech.Sci.) LAZAREV, Yu. G., DIANOV, I. M., MURAVKIN, B. N. (Engr.) and MAKSIMOV, V. M. (Cand.Tech. Sci.)

"Questions of Fuel Preparation."

A Scientific-Technical Conference on Auxiliary Equipment for Power Station Boiler Houses. Moscow, 17 - 20 Dec 1957.

Teploenergetika, 1958, No. 4, pp. 90-91 (USSR)

KISEL'GOF, M.L., red.; SOKOLOVA, N.V., red.; KORIKOVSKIY, I.K., red.; LARIONOV, G.Ye., tekhn.red.

[Norms for calculating and designing plants for the preparation of pulverized coal] Normy rascheta i proektirovaniia pyleprigotovitel'nykh ustanovok. Pod red. M.L.Kisel'gofa i N.V.Sokolova. Moskva, Gos. energ.izd-vo, 1958. 159 p. (MIRA 11:5)

1. Moscow. Vsesoyuznyy teplotekhnicheskiy institut.
(Coal, Pulverized)

KISEL'GOF, M.L.

AUTHOR: Kisel'gof, M.L. (Cand.Tech.Sci.) 96-3-19/26

TITLE: Improvements in hammer-type mills in Germany. (Usovershenstvovaniye molotkovykh mel'nits v Germanii.)

PERIODICAL: Teploenergetika, 1958, Vol. 5, No.3. pp.78-81 (USSR)

ABSTRACT: The development of unit type power stations has made it necessary to increase the output of milling units. Hammer type mills were required with an output of 50.tons per hour and more of brown coal. The article describes and illustrates with drawings different kinds of hammer type mill manufactured in Eastern and Western Germany. Since German brown coals are very wet, they have to be dried with high temperature flue gas, which has led to a number of problems, the solution of which is described. The comment is made that in addition to increasing the rotor speed, it is necessary, in order to get the output, to improve the aerodynamics of the system and to increase the distance between the rotor and stator, and so on. There are 7 figures, 3 tables, 6 literature references (German).

AVAILABLE: Library of Congress.

Card 1/1

SOV/96-59-9-20/22

AUTHORS: Kisel'gof, M.L. (Candidate of Technical Sciences) and Grodzovskiy, R.Ye. (Engineer)

TITLE: Dust Separators of the Taganrog Boiler Works - All-Union Thermo-Technical Institute Type for High-output Mills

PERIODICAL: Teploenergetika, 1959, Nr 9, pp 92-94 (USSR)

ABSTRACT: This article is a brief catalogue-style description of dust separators designed by the Taganrog Boiler Works - All-Union Thermo-Technical Institute (TKZ-VTI) for use with ball mills of output ranging from 16 to 50 tons per hour of anthracite dust. In many respects the separator is an improvement on earlier designs. It is designed to deliver dust with 6 to 28% residue on a 90 mesh sieve, which is satisfactory when used in conjunction with ball mills operating on anthracite dust and hard coal. In particular cases they may also be used with brown coal. However, for prolonged coarse milling of brown coal, other types of separator are recommended. The separator is of all-welded construction and the main parts to be erected are briefly described. The main dimensions and weights of the separators are given in Table 1 and an outline drawing in Fig 1. To select the right size of

Card 1/2

Dust Separators of the Taganrog Boiler Works - All-Union Thermo-Technical Institute Type for High-output Mills

separator for particular conditions, its volume is determined by applying a formula in conjunction with Table 3, and then Table 2 is used to select the correct model of separator.
There are 2 figures, 3 tables and 2 Soviet references.

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26.2160
26.2130

S/096/61/000/001/002/014
E194/E184

AUTHORS: Kisel'gof, M.L., Candidate of Technical Sciences, and Ponomarenko, Yu.V., Engineer

TITLE: Aerodynamic Testing of Ejector Burners

PERIODICAL: Teploenergetika, 1961, No. 1, pp. 22-29

TEXT: When coal is very wet air drying is not efficient enough to ensure reliable operation of shaft-mill furnaces. Accordingly, gas drying has been used in conjunction with shaft-mills. The general arrangement of such a furnace is shown in Fig.1. The fuel is first dried by gas, then milled and passed through a separator into the furnace. The resistance of the fuel duct usually exceeds the head developed by the mill and, therefore, an ejector burner is used to create an additional head to drive the fuel-gas-air mixture through the system. The present article gives results of aerodynamic tests on ejector burners of German manufacture having horizontal nozzles (Fig.2) and also of burners developed in the Vsesoyuznyy teplotekhnicheskyy institut (All-Union Institute of Heat Engineering) which are basically of the ejector type. T.I. Andguladze of the TKZ (Taganrog Boiler Works)

Card 1/6

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S/096/61/000/001/002/014
E194/E184

Aerodynamic Testing of Ejector Burners

participated in this work. The ejector burners were tested on a specially constructed rig. The material ejected was air from the boiler house at a temperature of 25-40 °C; the air used for ejection was derived from the boiler air heater and was at a temperature of 160-170 °C at pressures up to 200 mm water. The models of the ejector burners had flow parts of approximately full-scale dimensions. The measurement and test procedures are described and the formula used to calculate the ejector efficiency is given (Eq. 1). Test results are then given on a burner manufactured by the firm Steinmüller, a diagram of which is shown. Hot air from the air heater passes through four nozzles and issues from slots at speeds of 70-90 m/sec, setting up before the burners a suction of up to 40 mm water. The model was tested to determine its optimum characteristics using various slot sizes. Experimental curves of the ejector burner characteristics are plotted in Fig. 3a. Even under the best conditions the efficiency of ejection is only 18%, mainly because the ejector design is inadequate. The sources of the various losses are discussed.

Card 2/6

S/096/61/000/001/002/014
E194/E184

Aerodynamic Testing of Ejector Burners

Most of the loss arises from the complicated air flow arrangements that are used. Tests on the burner type BTM-1 (VTI-1) of the All-Union Institute of Heat Engineering are then described. The special feature of this burner is that in order to increase the efficiency of ejection the slot ejectors are built up of nozzles and mixing chambers arranged on a single axis, the ejectors are installed vertically in the furnace embrasure to facilitate delivery of the fuel air mixture to them. Three variants of VTI burners were tested; type VTI-1 with two parallel ejectors is illustrated in Fig.4. Tests were made to determine the best distance between nozzle and mixing chamber and this was found to be 155 mm. The characteristics of the burner for this distance are plotted in Fig.3 and it is found that in some sections the efficiency is up to 21.5% but in others it is much lower. The reasons why the characteristics are so unfavourable are discussed. The velocity and temperature curves plotted for various sections of the burners show that the speed of the ejected air before the nozzles and also of the hot air at inlet to the nozzles varies

Card 3/6

S/096/61/000/001/002/014
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Aerodynamic Testing of Ejector Burners

only slightly (Fig.5a). At exit from the nozzles the speed of the hot air is very irregular. This results from changes in the direction of flow on discharge from the nozzles resulting from their particular design. Tests on burner type VTI-2 are then discussed; this type was designed to avoid the disadvantages of type VTI-1. The new model has two vertical ejectors installed at an angle of 6° to one another. Accordingly, the section of the ejected air channels was increased by a factor of 3.5 and the speed in them reduced to 4.5 m/sec. Guide barriers were installed in the burner. The maximum efficiency of ejection at sections I — I and II — II was 28.6 and 27.5%. The distribution of speed and temperature was more uniform than in the VTI-1 burner. The inlet resistance factor to the nozzle of the VTI-2 burner was ten times less than in the Steinmüller burner. Burner VTI-3 was developed for the case when the hot-air nozzles are installed in the gravity shaft as shown in Fig. 6a. This construction was not quite so efficient as VTI-2. Comparison of test results shows that all variants of the VTI burner are better than the Steinmuller

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burner. Characteristics of the best designs of burner are given in Table 1. It is shown that other things being equal burner VTI-2 is the best and it is recommended for regular use. The use of burner VTI-2 instead of the Steinmüller burner reduces the demand for air under pressure, and from the comparative results for burners with horizontal and vertical nozzles given in Table 2 it will be seen that to set up an additional head of 35 mm of water before the burners the burner type VTI-2 required a hot air pressure before the nozzle of 124 mm water, whilst the Steinmüller burners require 209 mm of water. The corrections that must be applied in practice are discussed, and characteristics of the VTI-2 ejector burner under various conditions are plotted in Fig.7. In large burners, in order to reduce the length of the flame it is advisable to divide it into two halves as shown in Fig.8a; tertiary air may be delivered to the furnace through the slot between the nozzles or through a special slot above and below the burners. The importance of having a sufficiently high class of finish on the outlet edges of the nozzles is mentioned, and it is

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particularly necessary to observe the designed dimensions and positioning of the nozzles during erection in order to obtain the required efficiency.
There are 8 figures and 2 tables.

ASSOCIATION: Vsesoyuznyy teplotekhnicheskiy institut
(All-Union Institute of Heat Engineering)

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KISEL'GOF, M.L., kand.tekhn.nauk; MURAVKIN, B.N., inzh.

Burning of milled peat in furnaces with ejector burners. Teploenergetika 9 no.2:20-25 F '62. (MIRA 15:2)

1. Vsesoyuznyy teplotekhnicheskiy institut.
(Peat) (Boilers--Firing)

KISEL'GOF, M.L., kand.tekhn.nauk; POLFEROV, K.Ya., inzh.

High-capacity ball mills. Teploenergetika 9 no.12:2-9 D '62. (MIRA 16:1)

1. Vsesoyuznyy teplotekhnicheskiy institut.
(Milling machinery) (Coal, Pulverized)

KISEL'GOF, M.L., kand. tekhn. nauk; POLFEROV, K.Ya., inzh.

Centrifugal dust separators for ball mills with large productive capacity. Teploenergetika 10 no.11:22-28 N '63.
(MIRA 17:1)

1. Vsesoyuznyy teplotekhnicheskiy institut.

BOYKO, Yu.A., inzh.; DOBROKHOTOV, V.I., inzh.; ISEL'GOF, M.L., kand. tekhn.nauk; PATYCHENKO, V.S., inzh.; POGORELOV, B.F., inzh.; TARELKIN, M.F., inzh.

Burning of lignite with a high moisture content. Elek. sta. 36 no.2:8-12 F '65. (MIRA 18:4)

ZVEREV, N.I., kand. tekhn. nauk; KISEL'GOF, M.L., kand. tekhn. nauk

Comparison of the efficiency of coal dust cyclones. Elek. sta. 35 no.12:6-8 D '64. (MIRA 18:2)

KATSNEL'SON, B.D., kand. tekhn. nauk; KISEL'GOF, M.L., kand. tekhn. nauk; KLIMOV, I.I., kand. tekhn. nauk; SHAGALOVA, S.L., kand. tekhn. nauk; REZNIK, V.A., inzh.

Safety regulations for systems operating on pulverized fuel. Teploenergetika 12 no.4:90-93 Ap '65. (MIRA 18:5)

1. TSentral'nyy nauchno-issledovatel'skiy kotloturbinnyy institut im. I.I.Polzunova, i Vsesoyuznyy ordena Trudovogo Krasnogo Znameni teplotekhnicheskiy institut imeni Dzerzhinskogo.

KISELIGOF, M.L., kand. tekhn. nauk; CHELISHCHEV, N.V., inzh.; LIFSHITS, E.V., inzh.

Study of the crushability of fuels in hammer mills. Teploenergetika 12 no.7:35-41 Jl '65. (MIRA 18:7)

1. Vsesoyuznyy teplotekhnicheskiy institut.

POLFEROV, K.Ya., kand.tekhn.nauk; KISEL'GOF, M.L., kand.tekhn.nauk

Study of some laws governing the grinding of fuel in a ball mill.
Elek. sta. 36 no.8:24-29 Ag '65.

(MIRA 18:8)

KISEL'GOF, S., dotsent, kand.pedagog.nauk

Use of A.S.Makarenko's pedagogical legacy in technical schools. Prof.-tekh. obr. 20 no.3:12-14 Mr '63. (MIRA 16:3)

1. Kafedra pedagogiki Leningradskogo gosudarstvennogo universiteta. (Vocational education) (Makarenko, Anton Semenovich, 1888-1939)

KISEL'GOF, S.M.

3(5) PHASE I BOOK EXPLOITATION SOV/1827

Vsesoyuznyy nauchno-issledovatel'skiy geologorazvedochnyy neftyanoy institut

Geologiya i nefte-gazonosnost' yugo-vostochnykh rayonov Russkoy platformy; sbornik statey (Geology and Oil and Gas Bearing Characteristics of the Southeastern Regions of the Russian Platform; Collection of Articles) Leningrad, Gostoptekhizdat, 1958. 242 p. Errata slip inserted. 1,200 copies printed.

Resp. Ed.: Ya.S. Eventov; Eds.: N.S. Burshtar, N.S. Il'ina, and S.A. Sakhnovskiy; Tech. Ed.: A.B. Yashchurzhinskaya; Executive Ed.: N.V. Kulikov.

PURPOSE: This book is intended for petroleum exploration geologists, particularly those interested in the Russian platform area.

COVERAGE: These articles, originally read at a meeting of the Scientific and Technical Council of Ministry of the Petroleum Industry (1953), discuss the geologic structure of the south-

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eastern parts of the Russian platform, the planning of exploratory and prospecting work, and special problems in geochemistry. Studies are aimed at realizing the oil and gas potential of the area. Representatives of VNIGNI, VNIGRI, the Stalingradneftegazvedka Trust, Saratovneft', Kazakhstanneft', and Groznneft' contributed to the work. No references are given.

TABLE OF CONTENTS:

Geology and Oil and Gas Bearing (Cont.) SOV/1827

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KISEL'GOF, S.M.; KATIKHIN, V.R.; GUSEV, A.N.; PRISYAZHNYUK, A.S.; KOZLOVA, D.F.; BEREZKINA, M.Ye.

Paleozoic waters of Volgograd Province. Trudy VNIING no.1: 191-224 '62. (MIRA 16:10)

L 23027-65 EWT(1)/EPA(s)-2/EWT(m)/EPF(n)-2/EPR/T-2/EWP(t)/EPA(bb)-2/EWP(b)
Pe-4/Pt-10/Pu-4 IJP(c) JD/WW/JG

ACCESSION NR: AP4049568 S/0064/64/000/011/0058/0059

AUTHORS: Berto, L. A.; Kisel'gof, Yu. S.; Suchkov, V. N.

TITLE: Experimental induction pump feeder for lead alloys

SOURCE: Khimicheskaya promy*shlennost', no. 11, 1964, 58-59

TOPIC TAGS: induction pump, lead alloy, alkali metal, pump pressure regulator

ABSTRACT: The production of alkali metals (from the distillation of their alloys with lead and by the electrolysis of their molten salts using a liquid lead cathode) requires a stabilized flow which can be best provided by the system shown in Fig. 1 on the Enclosures. The flow through the diaphragm is maintained by the liquid metal column (H) in the overflow tube (3) which is supplied by the electromagnetic pump (2), and which overflows back into the supply tank (1). Flow stabilization errors arise as a result of velocity pressures from the pump discharge and are minimized by reducing the flow rate. Figure 2 on the Enclosures shows an electromagnetic pump designed to produce even, comparatively small discharges. Since the power consumption depends on the distance between the magnetic circuits, the tube was designed with a slit-like cross section to reduce this distance and to lower the power consumption. A test loop was devised and the pump characteristic (see Fig. 3 on the

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ACCESSION NR: AP4049568

Enclosures) was established for the pumping of the liquid alloy of lead-potassium which was maintained at a temperature of 500-530C. The operating conditions were as follows: 84 hours of continuous operation were maintained; winding temperatures (measured at 6 points) were 70-140C; cooling water flow was 400-450 liters/hour, with inlet temperatures 10-15C and outlet temperatures 14-18C; cooling air flow was 20-22 m^3/hour; three-phase 220-V power consumption was 1.5-2.5 kw (not including heating). With the perfection of the cooling system and an increase in reliability, such induction pumps will be well suited for transporting and measuring lead-alkaki metal alloys. Orig. art. has: 4 figures.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 03

SUB CODE: IE, MM NR REF SOV: 001 OTHER: 000

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L 42141-66 EWT(m)/T/EWP(t)/ETI IJP(c) DS/JD/WW/GD/JG

ACC NR: AT6022484 (N) SOURCE CODE: UR/0000/65/000/000/0338/0341

AUTHOR: Zaretskiy, S. A.; Suchkov, V. N.; Busse-Machukas, V. B.; Kisel'gof, Yu. S.; Yakimenko, L. M.; Alabyshev, A. F.

none

78
B+1

TITLE: On the preparation of chlorine, caustic soda, and alkali metals by electrolysis of fused media with a liquid lead cathode

SOURCE: Vsesoyuznoye soveshchaniye po fizicheskoy khimii rasplavlennykh soley. 2d, Kiev, 1963. Fizicheskaya khimiya rasplavlennykh soley (Physical chemistry of fused salts); trudy soveshchaniya. Moscow, Izd-vo Metallurgiya, 1965, 338-341

TOPIC TAGS: electrolysis, alkali metal, lead, liquid metal, chlorine, sodium hydroxide, CATHODE

ABSTRACT: In recent years, a new method of producing alkali metals has been in use in the Soviet Union: the metals are distilled out of a lead-alkali alloy prepared by electrolysis on a liquid lead cathode. However, the process is characterized by a recurring decrease of current efficiencies, particularly at high cathodic current densities. The article reviews studies made for the purpose of improving this method. It is shown that the electrolysis of alkali metal chlorides in molten salts with a circulating liquid lead cathode and distillation of the metal has many advantages over the electrolysis of aqueous solutions, namely: (a) pure sodium metal can be obtained at high current efficiencies, and pure caustic soda is thus produced without the necessity of using expensive mercury; (b) it is no longer necessary to build evaporation units and

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ACC NR: AT6022484

units for melting caustic soda; (c) the process is carried out at current densities that are 30-35 times higher than in diaphragm electrolysis, and 6-7 times higher than in mercury electrolysis. Orig. art. has: 5 figures.

SUB CODE: 07/ SUBM DATE: 23Aug65/ ORIG REF: 007

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GROZOV, Konstantin Petrovich [Hrozov, K.]; DANILENKO, Ivan Yakovlevich
KISEL'GOF, Zinoviy Sergeyevich [Kisel'hof, Z.], zasluzhennyy
mekhanizator sel'skogo khozyaystva USSR; VINNITSKIY, S., red.;
MOLCHANOVA, T., tekhn.red.

[What we learned from widespread practices] Shcho pokazav
masovyi dosvid. Odesa, Odes'ke knyzhkove vyd-vo, 1960. 24 p.
(MIRA 14:1)
1. Kolkhoz imeni Lenina Artsizskogo rayona (for Grozov).
2. Kolkhoz imeni Lenina Starokazatskogo rayona (for Danilenko).
3. Glavnyy inzhener Odesskogo oblastnogo upravleniya sel'skim
khozyaystvom (for Kisel'gof).
(Farm mechanization)

KISEL'GOF, Z.S. [Kysel'hof, Z.S.]; KAVALEROV, B.Ye. [Kavalierov, B.IE.]

Using rubber and glass pipes on livestock farms. Mekh. sil'. hosp. 12 no. 5:20-21 My '61. (MIRA 14:5)

1. Odesskoye oblastnoye upravleniye sel'skogo khozyaystva.
(Water pipes)

KISEL'GOG, Z.S.; PISAREV, A.I.

Make better use of available agricultural machinery. Trakt. i sel'khozmash. 31 no.6:36-38 Je '61. (MIRA 14:6)

1. Glavnyy inzh. Odesskogo oblastnogo upravleniya sel'skogo khozyaystva (for Kisel'gof). 2. Glavnyy inzh. Odesskoy rayonnoy traktornoy stantsii (for Pisarev).
(Agricultural machinery)

BLAZHEVSKIY, Ye.V., dvazhdy Geroy Sotsialisticheskogo Truda; VOVCHENKO, I.V., kand. sel'khoz. nauk, zasl. agronom Ukr.SSR; VOROB'YEV, N.Ye., st. nauchn. sotr.; GESHELE, E.E., doktor biol. nauk, prof.; ZUBRITSKIY, A.A., agronom; KISEL'GOF, Z.S., inzh., zasl. mekhanizator sel'skogo khoz. Ukr.SSR; KLYUCHKO, P.F., kand. sel'khoz. nauk; KORCHAGIN, A.Ye.; LEBEDEV, Ye.M., st. nauchn. sotr.; NASYPAYKO, V.M., kand. sel'khoz.nauk; PIKUS, G.P., kand. sel'khoz.nauk; REKACH, V.N., doktor sel'khoz. nauk, prof.; SPIVAK, I.I., zootekhnik; TEMCHENKO, L.V., kand. sel'khoz. nauk; FEDULAYEV, A.A., agronom; YAKOVENKO, V.A., kand. tekhn.nauk; KITAYEV, I.A., kand. sel'khoz. nauk, red.; MUSIYKO, A.S., akademik, red.; VINNITSKIY, S.P., red.; MOLCHANOVA, T.N., tekhn. red.

[For high corn yields] Za bol'shuiu kukuruzu. [By] E.V. Blazhevskii i dr. Odessa, Odesskoe knizhnoe izd-vo, 1962. 173 p. (MIRA 16:7)

1. Zven'yevoy kolkhoza im. Gor'kogo Kotovskogo rayona na Odesshchine (for Blazhevskiy). 2. Glavnyy agronom sovkhoza "Bessarabskiy" (for Korchagin). 3. Ukrainskaya akademiya sel'skokhozyaystvennykh nauk (for Musiyko).

(Ukraine--Corn (Maize))

KISELICKHI, Khr., inzh.;UZUNOV, St.

Rational utilization of kieselguhr. Tekh delo 464 2 16 F '63.